

# Long-term complications of melamine consumption in children

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Children with a history of consuming melamine-contaminated milk powder are at an increased risk of developing kidney stones and other urological complications. Researchers presenting two studies at the 104th Annual Scientific Meeting of the American Urological Association (AUA) found that melamine calculus occurred mostly in infants at six months to 18 months after consuming melamine-contaminated milk powder after birth but that the stones could be effectively managed with noninvasive treatment.

In the first study, researchers analyzed the clinical data of 50 young children with double kidney stones who had a history of consuming melamine-contaminated milk powder. Researchers studied ultrasound images from each child, measuring kidney stone size, number, shape and location. Eighty-five percent of these cases occurred in children ages six to 18 months. Of these 50 children, 42 formed kidney stones in both kidneys; multiple stones were found in 18 children; and single stones were found in nine of them. Eleven children experienced kidney failure, in which the stone diameters of bilateral kidneys were significantly larger than those who did not experience [kidney](#) failure. In 21 cases, the stone was passed after non-operative hospital treatment in an average of eight days.

Researchers in the second study analyzed the clinical data of 165 infants, aged 50 days to three years, with urinary stones who had a history of consuming melamine-contaminated [milk powder](#). The children were divided into mild (25 cases), moderate (122 cases) and severe (18 cases)

groups. Researchers found that the peak incidence of urolithiasis (urinary stones) was found in children aged six months to 12 months. Of these patients, 50.3 percent were asymptomatic, 16.9 percent experienced dysuria (painful urination), 14.6 percent had infantile colic, 10.9 percent experienced oliguria or anuria (decreased urine and absence of urine, respectively) and 7.3 percent had hematuria (blood in the urine). Acute urinary retention (the sudden inability to urinate) caused by urethral stones was found in five cases. The stone diameter ranged from 22mm to 16mm, and 63.5 percent of cases had 4-10 mm stones. All cases accepted non-operative treatment, except those cases with a bilateral stone and obstruction. After hospital treatment, the stone expulsion rate was 43 percent.

"This study presents us with the long-term complications for children who had been fed with melamine contaminated products," said Anthony Atala, MD, an AUA spokesman. "Both parents and physicians should be vigilant of these signs and symptoms in children who may have consumed the contaminated [milk powder](#)."

Source: American Urological Association

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